

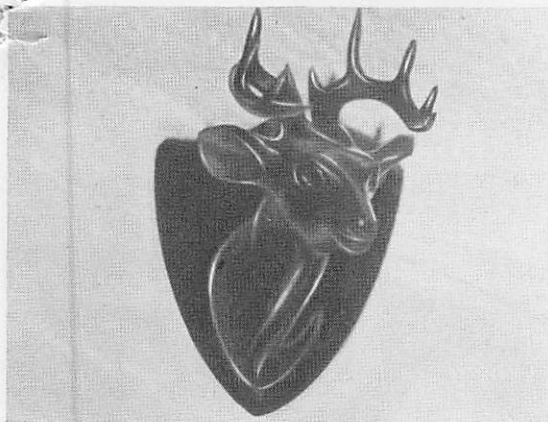
Pint-Sized *Super Highways*

What keeps those twisting, curling cloverleaves from becoming a great can of worms? It's planning—in miniature—the kind which would delight the heart of any amateur model builder

AMONG highway construction engineers, it is said, there is a recurrent nightmare. In this bad dream they are attending the official dedication of their latest design—a multiple interchange that is a maze of swooping, curving bridges, approaches and exits. On hand to witness the operation of this engineering marvel are the President of the United States, the Governor of the state, assorted senators and congressmen. A signal is given by the President and 12 new automobiles of various make approach the intersection at top speed from different directions. When they reach the center they all crash.

To make certain that this will never happen in California, a group of road builders are plying their craft in a warehouse studio in Sacramento—building the state's highway system in miniature.

Working from topographical maps and elaborately detailed aerial photos, California Highway Department's model makers



ANOTHER EXAMPLE of fine detail in carved gemstone. Antelope head has full set of antlers. Done in green jade, piece is worth about \$500, Harvill says

His next 13 pieces were carved in exactly the same way, and they were good enough to begin winning lapidary (stone cutting) awards almost at once. His animals and simple shapes ("I had to start with easy things," he says) won him the Texas state award the second year he tried for it. The third year he was Texas champion and tied for U.S. honors. The fourth year he copped the state, national and special "highest single achievement" prizes.

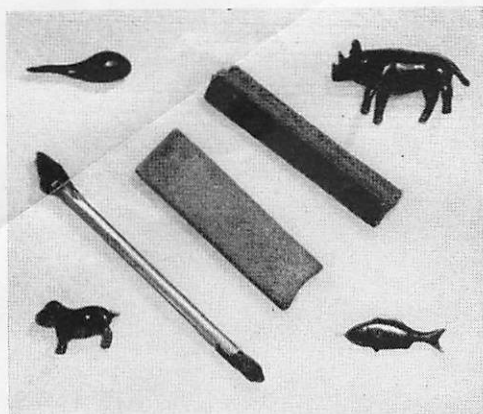
By this time the jeweled stick and sand-cloth technique had proved too tedious for major pieces, so Harvill turned to the technique he now uses.

"First," says the laconic Texan, "you

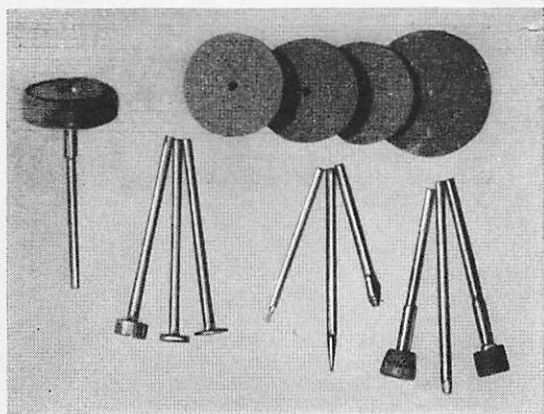
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BLACK-JADE Genii rises from spout of green-jade lamp. Valued at \$3500, it stands eight inches tall and is the favorite of Lincoln Borglum, who carved heads of presidents on Mount Rushmore. Harvill has other pieces wanted by the Smithsonian Institution





FIRST TOOLS were modest. They included metal rod with sapphire and ruby tips, pocket whetstone and small sand cloth. First carvings are also shown



NEW TOOLS include variety of diamond and bronze-tipped steel drills and carborundum wheels. Three needle bits in center are worn-down diamond tips

teapot and pitcher, carved out of flawless black jade, and costing another \$8000, are remarkable for their very existence.

According to Mr. Harvill, anybody can do what he does with gemstones. He got started only eight years ago, "and I had no idea I could do it," he says. He was 52 at the time, and had been an auto repairman, welder and heavy equipment builder for 25 years. That year his oldest son gave him a small piece of green jade for Father's Day to add to his modest collection of rocks, almost all from local creek and river beds.

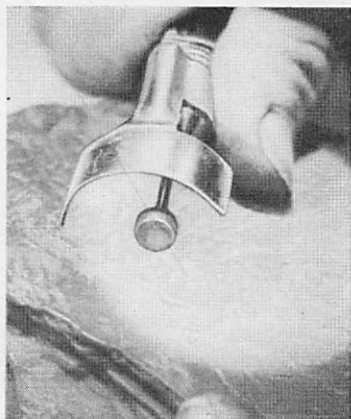
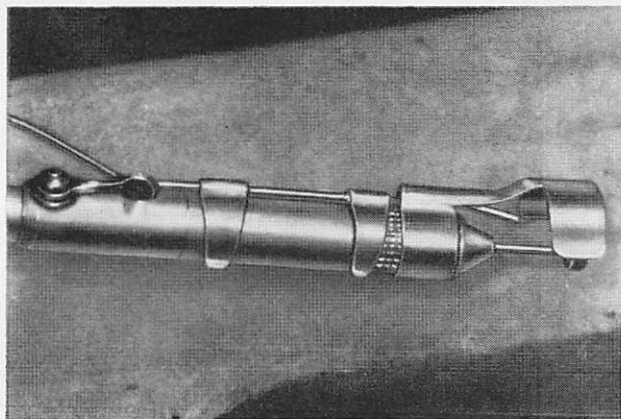
"I had seen commercially carved pieces of jade jewelry," Harvill says, "and the minute I got that piece of jade I decided to try to carve it. I figured I could do as

saw well as some of the junk I saw in stores."

Harvill's first tools were extremely simple—a metal rod with a chip of ruby embedded in one end and a similar piece of sapphire in the other, a pocket whetstone and a piece of sand cloth. He used an ordinary small diamond-bladed trim saw to rough out the shape of his first effort, a fish. The jeweled stick was used to cut the features, the whetstone to rub away jade to the final contours, and the sand cloth to finish it off.

"All it took," says Harvill, "was lots of time. But that's the beauty of jade. It's just hard enough to require patience and many hours to work. But if done properly, it will hold an infinite amount of detail and last forever."

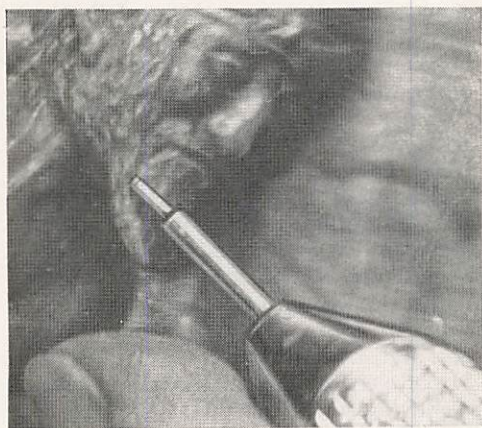
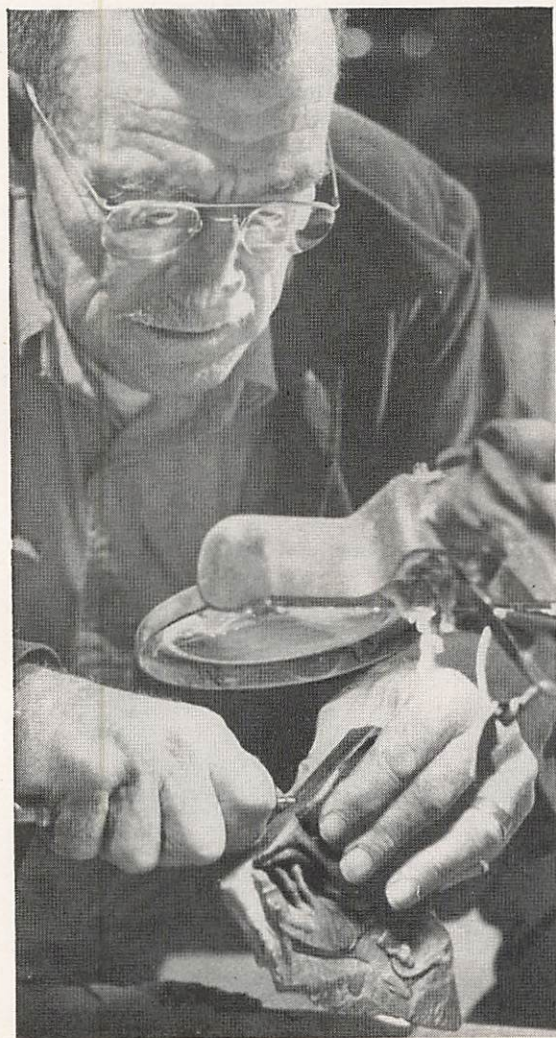
DENTIST'S DRILL is equipped with tube that carries water spray to tip. Picture at right shows drill in position for early rough work. Water spray was not on, however, in order to get clear a close-up photo of the drill head



GOOD SAMARITAN, photographed here against light, shows translucence of gemstone. Stone is $1\frac{1}{8}$ -in. thick, but note glow around Samaritan's head. Also note retreating figures in rear



ROBERT S. HARVILL at work on giant 4500-karat ruby. He peers through magnifier while carving, but removes work frequently for inspection. Harvill keeps fingers close in for control



EXTREME CLOSEUP shows needlelike drill used on detail work. Harvill makes his own drill tips; larger tips eventually wear down to smaller tips

DENTIST'S DRILL is held close to work by Harvill's fingers. When doing close-in detail work, Harvill does not use water spray. It would obscure work





PINK JADE was used to carve figure of old man planting tree. Valued at \$8000, it took 1100 hours. Detail includes tree roots cut to thickness of sewing thread

Lore from a **Gemstone Carving Genius**

He uses dentist's drills and infinite patience to shape raw ruby and jade into things of beauty

By Dennis J. Cipnic

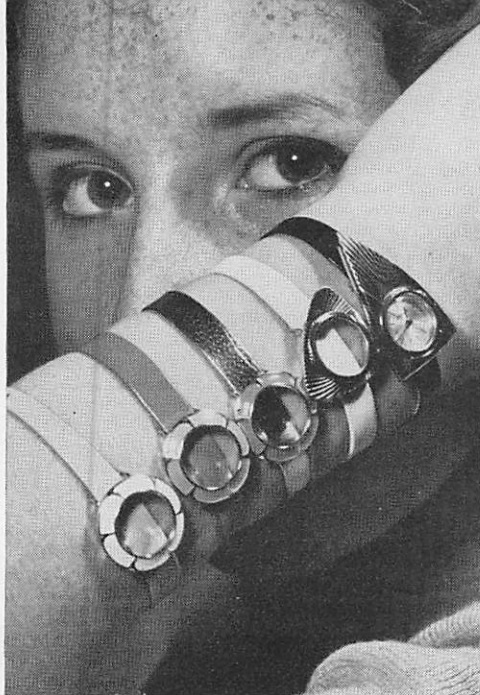
ONE OF THE MOST REMARKABLE artists around is a South Texas oilfield welder named Robert S. Harvill. During the day he works in the construction of multi-ton brush clearing equipment. In spare time he carves some of the world's finest gemstones.

Harvill, 60 years old, has won state and national honors for gem carving, and major gem shows invite him every year, expenses paid, to be a special exhibitor. Among his admirers are sculptor Lincoln Borglum, oriental jade experts and the Smithsonian Institution, which wants to add two of his works to its permanent collection.

His pieces range from tiny jade pendants worth about \$50 to a giant ruby weighing 4500 karats and valued, in his words, at "anywhere from \$50,000 to \$250,000." They were all made in his drafty, litter-strewn welder's shop at Sinton, Texas, using simple tools, a lot of patience and an instinctive artist's touch.

Some, like a finely detailed old man planting a tree, in pink jade, and appraised at \$8000, are marvelous for their detail and workmanship. Others, such as a full-sized working





Watch the Watch Change Its Appearance—35 Ways

The case and leather strap of a new Swiss watch can be changed to match the outfit that a woman is wearing. Each case fits over the watch face, and the strap is changed by slipping a new one through metal loops on the back of the case. Five

cases and seven straps offer 35 variations.

Five of the cases and five straps are shown at left. At right, a watch is being inserted into the case. The Nivada Colorama watch set is sold by Andrew & Co., Ltd., 102 Hatton Garden, London, England.

Proving Ground Rolls to Test Site

There's no need to move vehicles to the site of an ordinary chassis dynamometer when the new M-P-G (Mobile Proving Ground) is available. The new testing unit can be towed where it's needed to check vehicle performance.

Available M-P-G models range from stationary units that merely absorb and record power output to tape-controlled, fully mobile rigs that can duplicate operation on any highway or proving ground. Manufacturer is Labeco, Mooresville, Ind.

